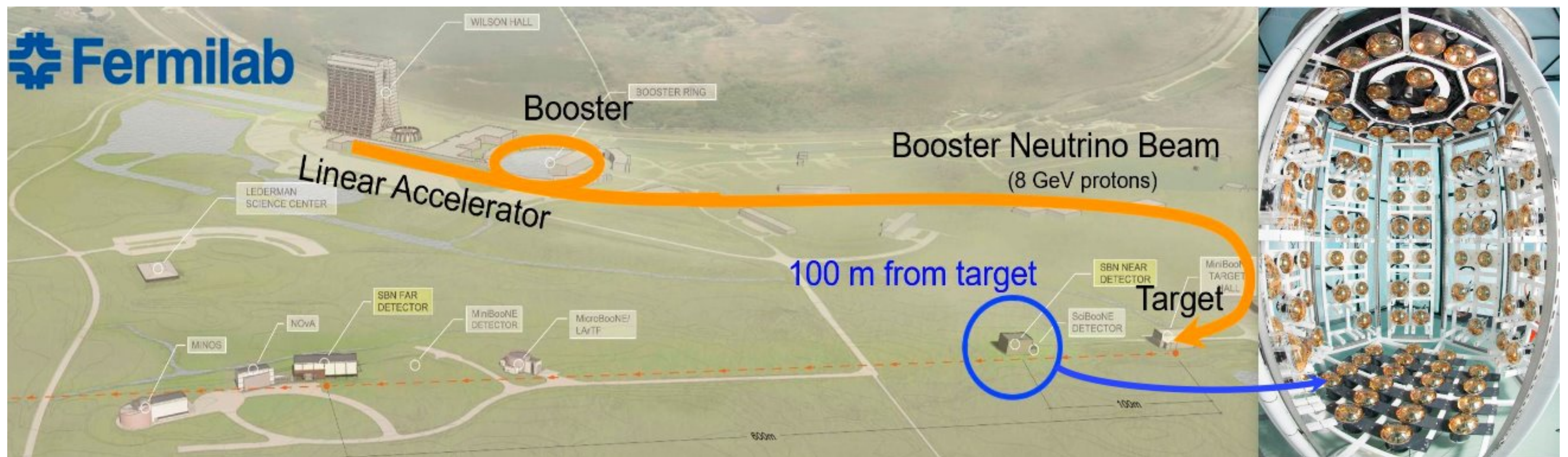
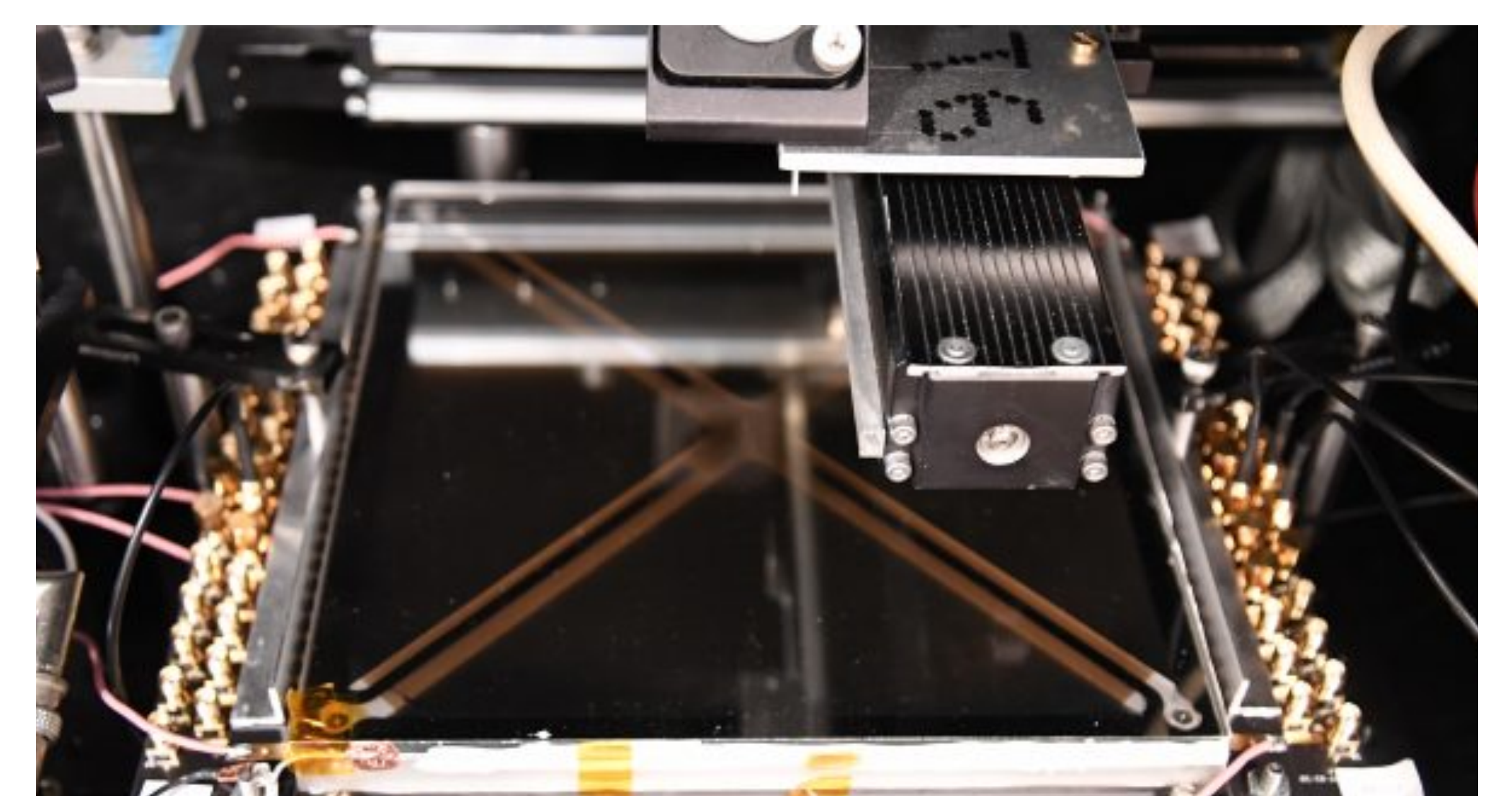
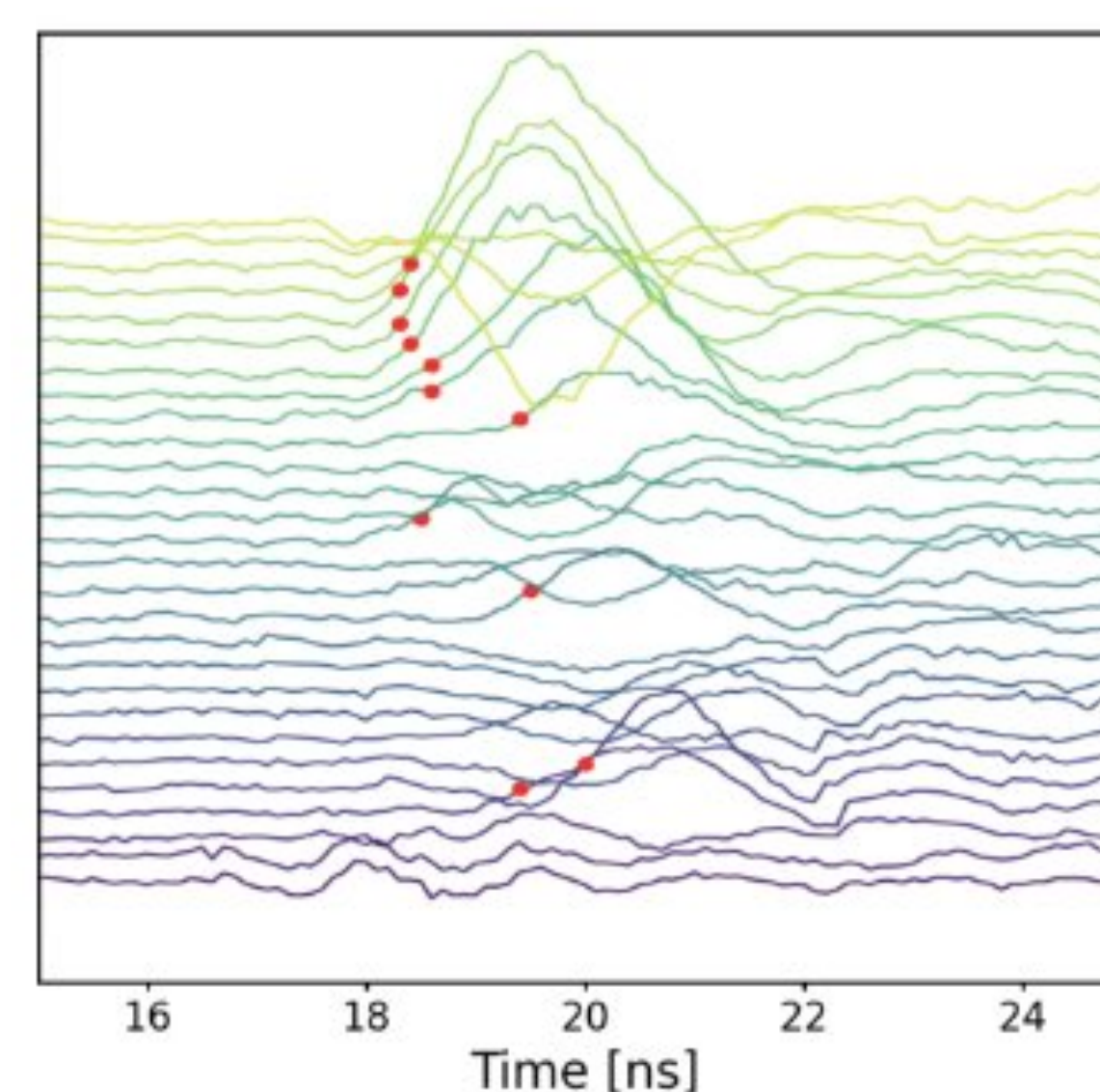
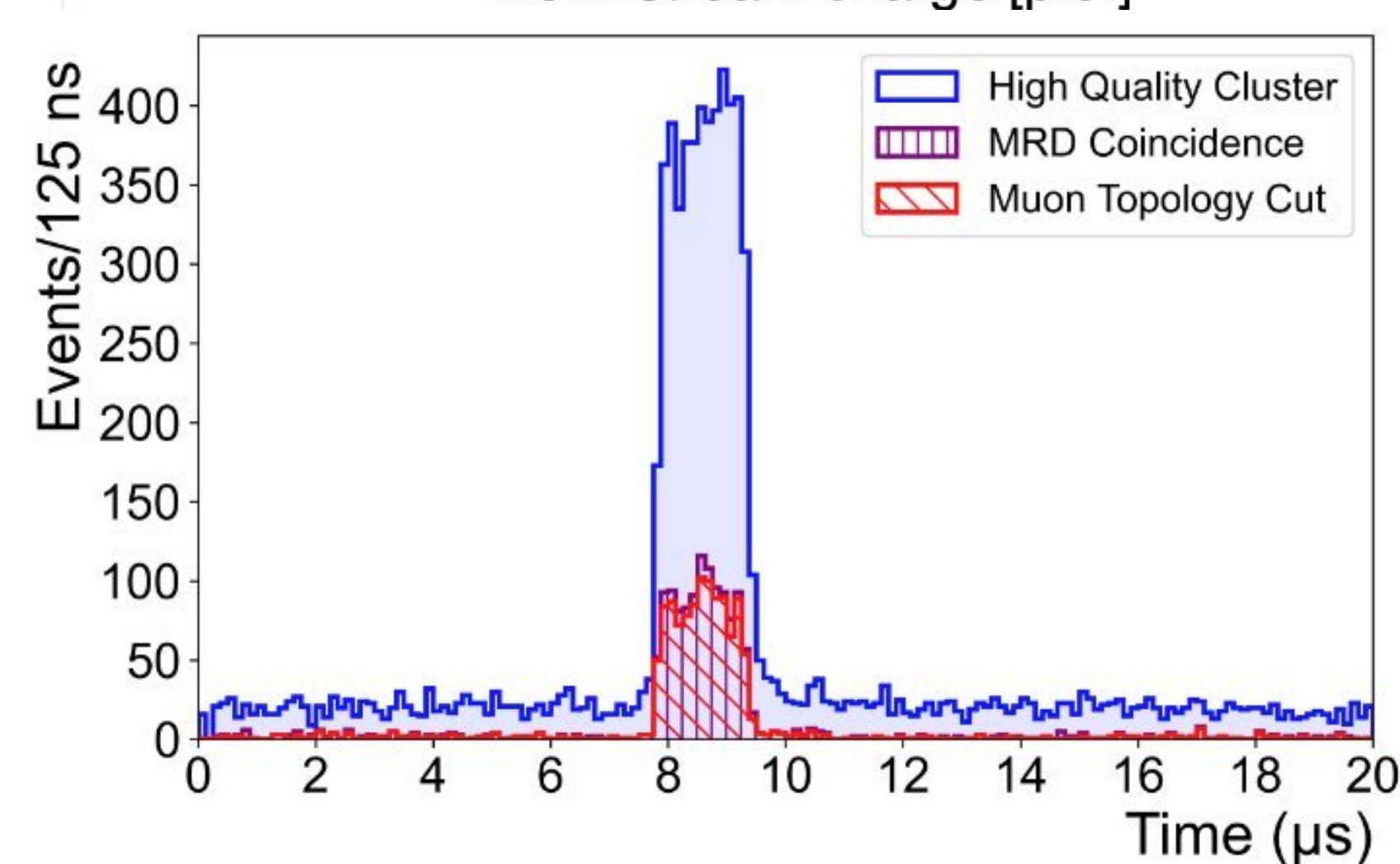
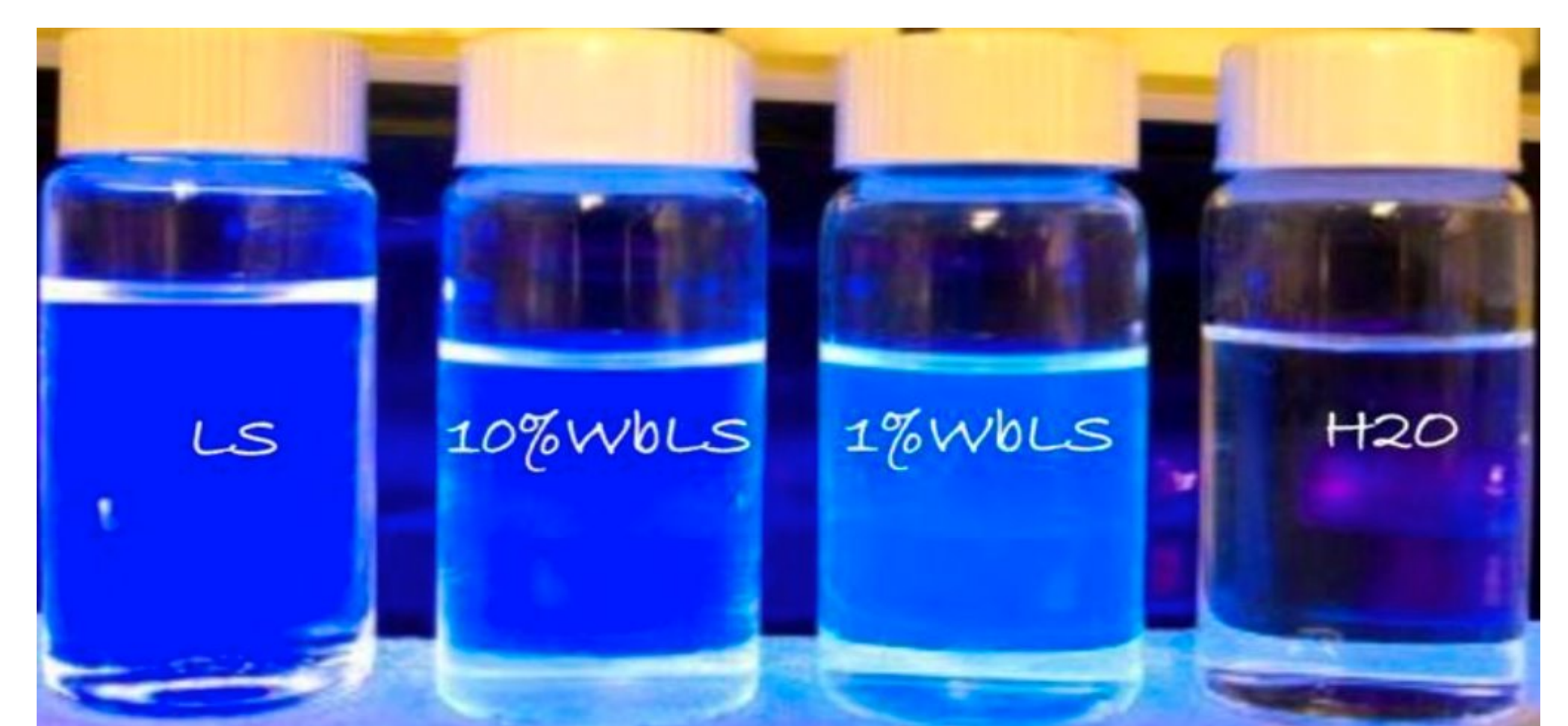
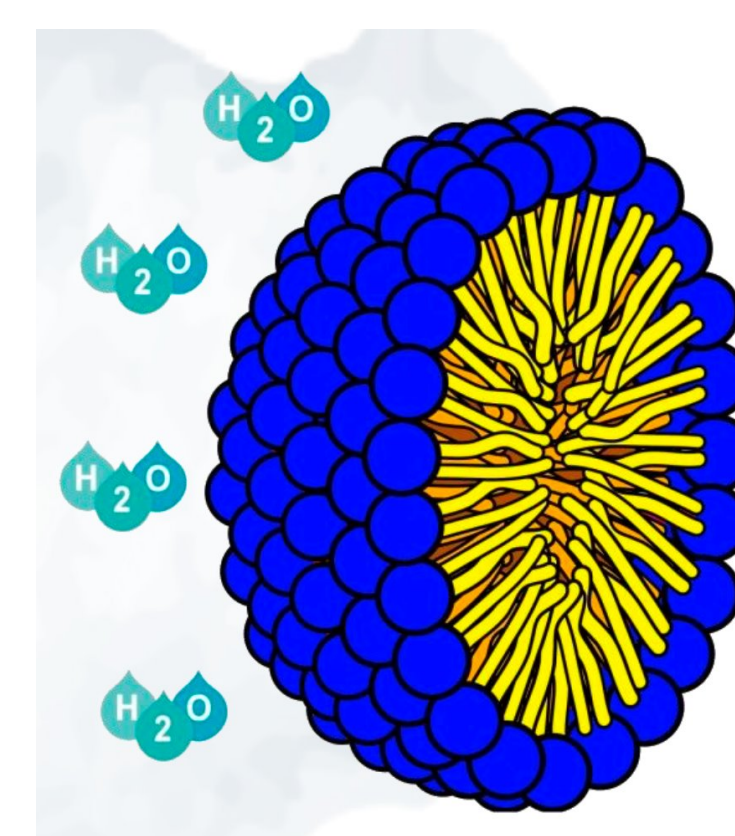
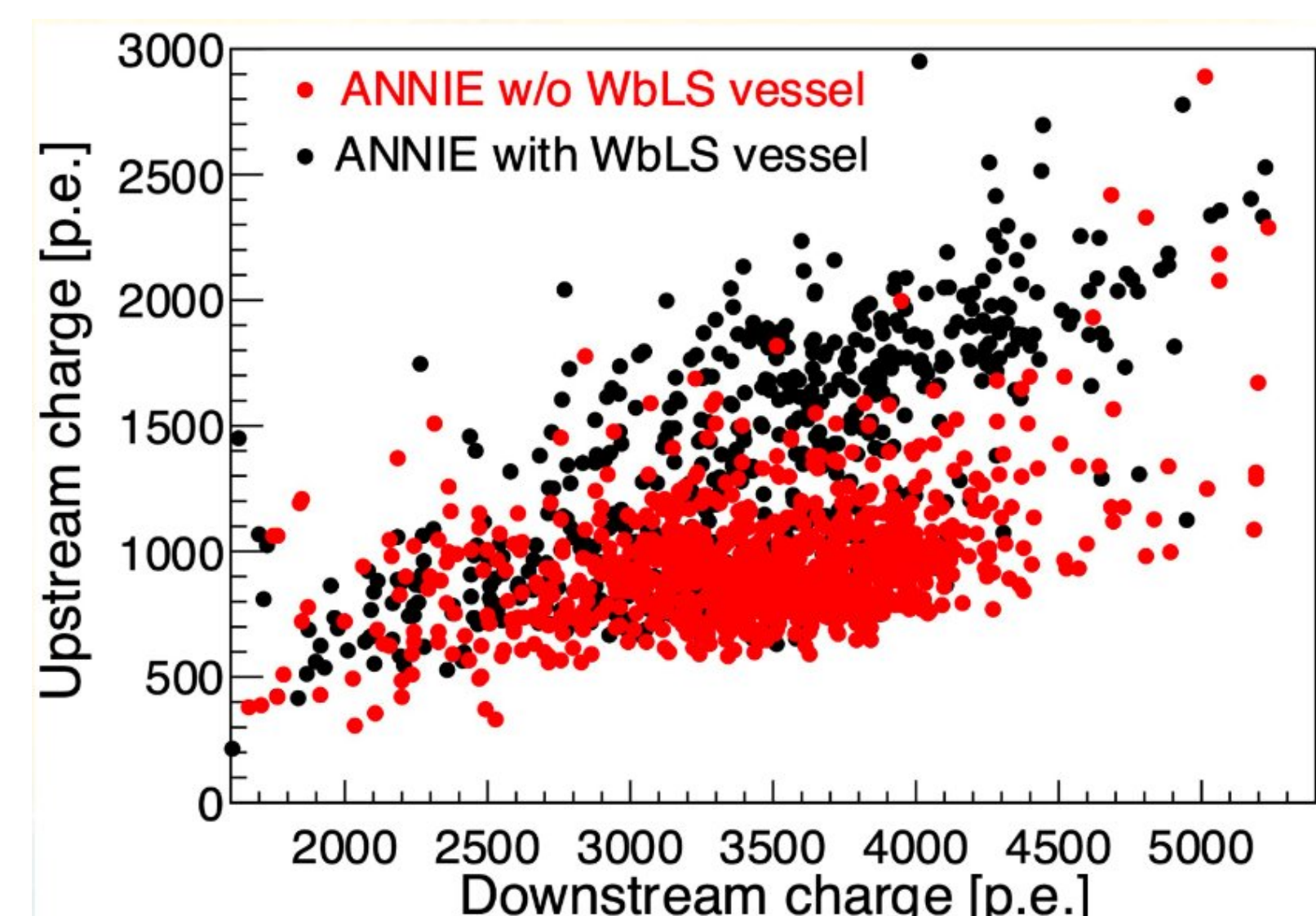
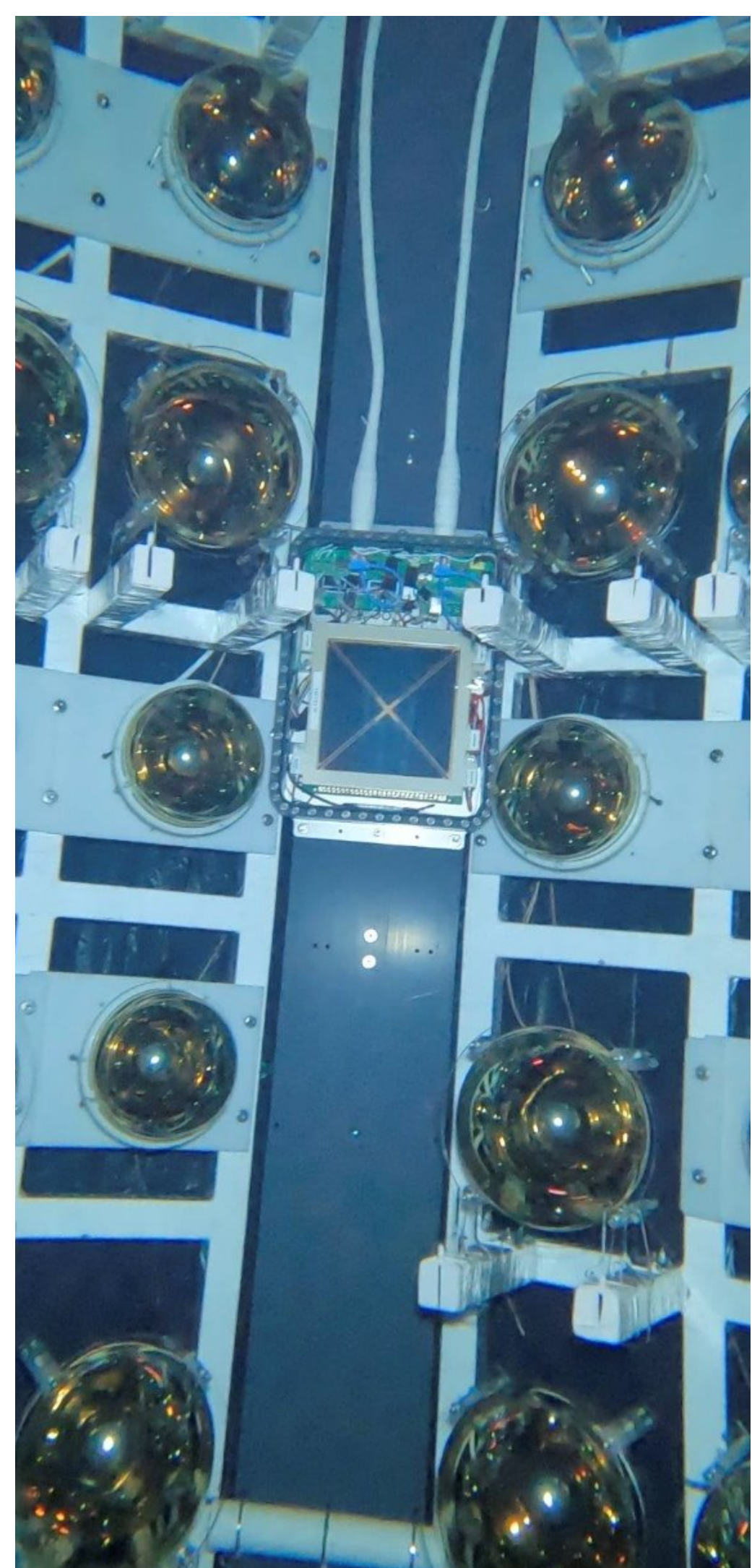


Open Bachelor/Master theses with Prof. Caren Hagner in: **ANNIE Experiment**



Experiment Overview

The **Accelerator Neutrino Neutron Interaction Experiment (ANNIE)** is a 26-ton Gd-loaded water Cherenkov detector on the Booster Neutrino Beamline at Fermilab, US. ANNIE studies neutrino interactions and neutron production while serving as an R&D platform for next-generation detector technologies, including **LAPPDs** and **Water-based Liquid Scintillator (WbLS)**.



Our work focuses on **timing-based reconstruction in ANNIE**. This includes studying beam time-structure and stroboscopic effects with flux, GENIE, and detector simulations; applying JUNO-inspired **Topological Track Reconstruction (TTR)** methods to WbLS event reconstruction; and analyzing LAPPD data for fast-timing applications.

Topics:

- ANNIE beam timing studies
- Flux and GENIE simulations
- JUNO-inspired TTR for ANNIE WbLS
- LAPPD timing analysis



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